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**CONSENT DECREE**  
**PROCESS PONDS OPERABLE UNIT**  
**EAST HELENA SUPERFUND SITE**  
**PROGRESS REPORT #190, JULY 2006**

Gentlemen:

On December 27, 1990, a Consent Decree ("Decree") executed by ASARCO Incorporated ("ASARCO"), the United States Environmental Protection Agency ("EPA"), and the United States Department of Justice was entered for the East Helena Superfund site. This Decree addresses remediation of the Process Ponds operable unit and requires Asarco to perform the Work specified in the Record of Decision, issued on November 22, 1989, and the Comprehensive Remedial Design and Remedial Action Work Plan for the Process Ponds operable unit ("Work Plan"), both of which have been incorporated into the Decree. The Record of Decision was subsequently amended by an Explanation of Significant Differences on June 17, 1993, based on changes in RCRA requirements and site conditions.

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Section VIII of the Decree, Reporting Requirements, requires Asarco to submit certified monthly progress reports to EPA and the State of Montana (the "State"), which discuss actions taken by Asarco in achieving compliance with the Decree. These reports are to be submitted to EPA and the State on or before the 20th day of each month after the lodging of the Decree, until EPA accepts the constructed project as described in the Work Plan. The following describes only those activities that have occurred or are related to projects performed during July 2006. The historical actions taken by Asarco in achieving compliance with the Work Plan are contained in previous monthly progress reports.

**A. A description of the actions taken toward achieving compliance with the Decree, including plans and actions completed during the reporting period:**

In May 2006, Asarco provided EPA with responses to the comments from the technical experts at EPA's Office of Research and Development on the 2005 Addendum to Interim Measures Work Plan, Groundwater Interim Measures (November 2005). In a July 3, 2006 letter, EPA indicated that Asarco's responses adequately addressed the comments.

During the period of July 17-20, 2006, Roger Sharpe (Multi-Phase Technologies, LLC (MPT)) installed and adjusted the instrumentation contained within the monitoring wells located in the vicinity of the EPA PRB pilot test wall. In past months, MPT had been monitored wells TR0, TR1, T2A, and the downgradient well. The EPA Office of Research and Development is currently using the upgradient monitoring well for Discrete Multi-Level Sampling (DMLS). Historically, the installed cables were comprised of PVC insulation. The 25 cm takeouts (electrode spacings and constructed of 308 stainless) were being used in TR0 and T2A. The 50 cm takeouts were being used in TR1 and the downgradient well. With the recent changes, MPT has swapped all but 2 PVC insulated cables for cables with better insulation, and 316 stainless electrodes. MPT is now monitoring TR0, TR1, T2A and T2B with 25 cm takeouts. Per an agreement between MPT and EPA, the DMLS sampler from the upgradient well was removed with the respective samples forwarded to the EPA Office of Research and Development for analysis. MPT is now monitoring the upgradient and downgradient wells with 37.5 cm takeouts. Finally, MPT moved the 25 cm PVC cables from TR0 and T2A to T3A and T3B. A total of eight wells are now being monitored. In the fall 2006, in collaboration with EPA's scheduled return visit, MPT plans to install permanent cables in 3-4 wells located within the barrier. The wells will be installed for MPT by EPA Geo-probe equipment.

Asarco has previously provided Montana Department of Environmental Quality (MDEQ) and EPA with a listing of specific waste categories for placement within the CAMU Phase 2 Cell. Based upon input from MDEQ and EPA during an August 3, 2006 conference call, the original list has been revised. The waste material examples contained within the revised list will be continuously updated as Asarco proceeds through execution of the Montana and RCRA Consent Decree.

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As prescribed in the Montana Consent Decree, Asarco submitted a revised 2006 Work Plan on July 14, 2006. This revised 2006 Work Plan included, not just the cleaning and demolition of the sinter plant, but the cleaning and demolition of the dross plant, laboratory, blast furnace flue (from the dross plant to the No.1 blast furnace), sinter plant baghouse, hot Cottrell, acid plant scrubbers, and mist precipitator building. Coincidental with the development of the revised 2006 Work Plan, Envirocon submitted the Phase 2 and 3 Decontamination and Demolition draft work plan to MDEQ. On July 20, 2006, MDEQ approved Envirocon's work plan, pending review of the associated asbestos work plan.

Under the Phase 2 and 3 Decontamination and Demolition Work Plan (and the yet to be fully developed site-wide cap plan), Asarco proposes using on-site fumed slag as backfill. The fumed slag will be placed in areas that are below grade or require drainage assistance. The fumed slag will serve as the subgrade for the interim and final cap, over which an engineered cap comprised of non-woven geotextile and RPE will be placed. In response to EPA's July 6, 2006 comments, Asarco provided the rationale for using fumed slag for this purpose, including study results derived from the RCRA Consent Decree investigations.

#### Groundwater Remedial Evaluation

During July 2006, Asarco continued to evaluate groundwater remedial measures that may be applicable to the East Helena site. Most of this evaluation focused upon the action items developed during our April 25–26, 2006 meetings.

- In July 2006, Asarco continued discussions with Shaw and other potential contractors to evaluate information necessary to construct slurry walls in the former acid plant sediment drying area. The slurry wall construction in the former acid plant sediment drying area is tentatively scheduled for fall 2006 and in the speiss granulating area during calendar year 2007.
- On July 7, 2006, Asarco and Shaw Environmental personnel met at the East Helena site to further define construction logistics and to refine a more complete scope of work relative to construction of a slurry wall in the former acid plant sediment drying area.
- A cost estimate package for slurry wall construction in the former acid plant sediment drying area was submitted to other potential contractors, including Envirocon (at their request) as verification and to examine possible alternative contractors for source control work.

#### Pump and Treat Pilot Test

During the July 2006, CDM, Hydrometrics, and Asarco have been preparing for the upcoming pump and treat pilot test at the East Helena lead smelter. The July 2006 activities completed include:

- CDM completed the Bench-Scale Test Report for the Pump and Treat Pilot Test. This report summarizes the results of tests performed to evaluate options and costs for treating a combination of source waters in the High Density Sludge (HDS) water treatment plant. The results indicate that the HDS water treatment plant can meet

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MPDES discharge limits for arsenic and metals, with only minor modifications to the plant.

- Asarco initiated HDS water treatment plant modifications, including procuring and installing the necessary equipment to add iron and coagulant to the neutralization reactors and installation of new valves and piping to route speiss granulating area groundwater and stormwater to the feed tank. Provisions have been made to temporarily modify the process control system for the pilot scale test.
- Hydrometrics and Asarco were scheduled to construct a new groundwater capture well in the vicinity DH-33 of the speiss granulating area. The capture well could not be installed in July 2006 because of difficulties associated with timing of the boreholes being installed in the former acid plant sediment drying area. A new drill rig is scheduled to arrive at the facility in August 2006. The new groundwater capture well is scheduled to be complete in early August 2006.
- CDM has prepared a preliminary pilot scale test plan. The plan describes the required volumes of speiss water and stormwater and outlines the two major tests to be completed. The first test will involve treatment of 100% stormwater using the new treatment approach determined during bench-scale testing. The second test will consist of treating 100% speiss granulating area water. The completion of these two tests will bracket the range of water qualities requiring treatment. The first test will be conducted at a HDS water treatment plant flow of 90 gpm while the second test will be performed at 45 gpm. The sampling and analysis will be conducted after the HDS water treatment plant reaches steady state operations and purges a volume equivalent to two residence times. The treated effluent will be routed to the spare one million gallon storage tank, rather than being directly discharged. Depending upon the quality of the treated water, the pilot test effluent may be re-treated using the pre-pilot scale test format.

During August 2006, the pump and treat pilot scale test activities will include completing the installation of the speiss granulating area capture well, completing the HDS water treatment plant modifications, finalizing the pilot scale test plan, and modifying the plant process control system in preparation for the pilot scale test. The actual pilot scale testing is tentatively scheduled to begin in mid-August 2006 and be completed by mid-September 2006.

#### Corrective Action Management Unit (CAMU)

In a letter dated July 11, 2006, EPA and MDEQ concurred with Asarco's June 16, 2006 letter that outlined the geotechnical and site investigation work for the CAMU Phase 2 Cell. During a three-day period (beginning on July 24, 2006), Hydrometrics performed the geotechnical investigation by dividing the site into a grid with an approximate grid spacing of 200 ft by 200 ft. Seventeen locations were sampled using a Power Probe hydraulic push sampler. Each location was sampled to the bottom of the loam strata, which ranged from 8 to 22 feet thick. These samples will be tested for plasticity and gravel, sand, and fines content. Because of the variation in the loam strata thickness, 10 additional boreholes in

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the area located southeast of the CAMU Phase 1 Cell will be needed to better quantify the volume of material available to construct the clay liner. Work on these additional boreholes is scheduled to begin on August 2, 2006. The analyses of the collected samples will begin later in August 2006. Once this data is analyzed, approximately five additional bulk samples will be collected in the field from test pits that will provide material that best represents the material selected for construction of the compacted clay liner. These samples will be sent to a soil laboratory to determine the permeability of the soil when compacted to 95% of maximum Proctor density.

During a two-week period beginning on July 17, 2006, ENTACT Environmental Services conducted a facility-wide waste volume survey. ENTACT is schedule to provide Asarco with the facility wide waste volume survey in early August 2006.

On July 10, 2006, Hydrometrics performed the first 5-year, periodic technical inspection of the CAMU Phase 1 Cell. The inspection noted that the condition of the vegetation throughout the entire site is well established and no signs of noxious weeds present. No erosion, seepage, or surface cracking is apparent over the entire CAMU. Storm water conveyances are clean, and show no signs of erosion or blockage from vegetation or sedimentation. Security at the site is good. The monitoring wells are equipped with locked lids. The perimeter fence is in good condition, kept locked, and public access is prohibited. There were only two minor shortcomings noted. A mouse burrow is present near the toe of the northeast slope that needs to be monitored to ensure that mice do not infest the CAMU lining. Rodenticide is selectively applied in impacted areas to control mice over the CAMU. In addition, a corrugated drainpipe on the northeast toe of the CAMU slope was exposed and cracked in several places. Asarco completed the repair of this drainpipe on July 13, 2006.

#### Groundwater Drilling Program

On July 14, 2006, Asarco submitted to EPA and MDEQ the 2006 Addendum to Interim Measures Work Plan, East Helena Facility, 2006 Supplemental Monitoring Wells and Bore Hole. This Work Plan set forth the drilling program that is necessary to 1) confirm the stratigraphy in the speiss granulating area, 2) provide groundwater for the pump and treat pilot scale test, 3) identify the location of the ash unit in the former acid plant sediment drying area, 4) define the outer limits of arsenic plume in proposed PRB area, and 5) establish a baseline of groundwater quality in the CAMU Phase 2 Cell area.

The 2006 Supplemental Monitoring well and Bore Hole drilling program was initiated in late July 2006 in the former acid plant sediment drying area. Boland Drilling completed one borehole that was advanced to 31 feet, where the ash layer was encountered. Although site conditions were discussed prior to the initiation of the project, drilling the borehole was more difficult than the drilling contractor had anticipated. After completion of the one borehole, the drilling program was temporarily suspended until the contractor could equip a drilling rig with an O-dex or Tubec drilling system. This system allows the advancement of casing through the cobbles and boulders that are typical of the site while still providing more efficient and timely sample collection using split spoons. This system was widely used for previous borehole and monitoring well drilling programs at the East Helena site.

The primary purpose of borehole drilling in the former acid plant sediment drying is to provide information for slurry wall design, including target depth. Of particular interest is the presence or absence of a clay layer at about 20 feet. Although a thin (about 1 foot) clay layer was encountered at 20 feet, it does not appear thick enough to key the slurry wall. It is now expected that a slurry wall in the former acid plant sediment drying area would have to be advanced to the ash layer for proper completion.

#### Long-Term RI/FS Monitoring Program

The analytical results from the May 2006 semi-annual sampling of the designated monitoring wells and surface water sites as prescribed in Asarco's on-going Post Remedial Investigation (RI)/Feasibility Study (FS), Long Term Monitoring Program were received from Energy Laboratory in late June 2006. As previously reported in the June 2006 monthly progress report, some of the monitoring wells located in northern part of the City of East Helena (EH-100 series) that were sampled in May 2006 exhibited low but detectable arsenic concentrations ranging from 0.002 mg/l to 0.008 mg/l.

Since historical arsenic results from these monitoring wells have been typically below laboratory detection limits, a supplemental set of groundwater sampling of these wells was conducted in June 2006. The June 2006 sampling was performed after the monitoring wells were supplied with new sampling tubing and new sample pump equipment. The recently received June 2006 supplemental monitoring well sample results were similar to the results obtained from the May 2006 event and appear to confirm the low level arsenic results.

The water quality of the identified monitoring wells remain less than the Montana Human Health Standards (0.010 mg/L, effective January 23, 2006) and Federal Maximum Contaminant Level (MCL)/Action Levels (0.010 mg/L). Asarco recommends that additional monitoring at an increased frequency take place to confirm the May 2006 and June 2006 results and to determine if an increasing arsenic concentration trend is apparent. Based upon concurrence with EPA Region VIII technical experts, Asarco will perform supplemental groundwater monitoring well sampling (from the EH-100 series) in September 2006. This supplemental information will be helpful for decision making relative to potential future groundwater actions in the East Helena area.

In addition, an evaluation is ongoing to assess the possibility of a laboratory source that may be responsible for the recent trends in detectable arsenic levels at the groundwater monitoring wells. A laboratory error source remains a high possibility since the original RI/FS project detection limit for arsenic was 0.005 mg/L, instead of the current 0.002 mg/L. The original 0.005 mg/L detection limit is a reportable value that most laboratories feel is comfortable in attaining with less possibility for error.

On July 12 2006, Asarco completed the bi-monthly residential groundwater well sampling outlined in Asarco's on-going Post Remedial Investigation (RI)/Feasibility Study (FS), Long Term Monitoring Program. Under this program, the Nordstrom and Jones (formerly Yuricic) irrigation groundwater wells and the Corbett (formerly Marcum) and Jensen residential groundwater drinking water wells were sampled. In addition, the Helfert

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groundwater well was also sampled to validate the May 2006 analytical arsenic result. The analytical dissolved arsenic results obtained from the Nordstorm, Colbert, and Helfert groundwater wells were below the laboratory detection limit of 0.002 mg/L. The analytical dissolved arsenic result obtained from the Jensen groundwater well was measured at the laboratory detection limit of 0.002 mg/L. Since the 0.002 mg/L value is essentially the same as the instrument detection limit, occasional "noise" will result in detectable values at this very lower detection limit. Consequently, detectable values at the 0.002 mg/L limit are not considered significant.

The July 12, 2006 groundwater arsenic sample result from the Jones irrigation groundwater well was 0.006 mg/L. This arsenic result is not consistent with previous monitoring data and indicates a very small change from historical baseline data. On July 24, a follow up sample was collected from the Jones irrigation groundwater wells. The analytical dissolved arsenic results obtained from this follow-up sampling were 0.006 mg/L and 0.005 mg/L for the original and duplicate samples, respectively. Asarco is investigating the possible reasons for the atypical but detectable arsenic results in the Jones' irrigation well. The next bi-monthly sampling of the Jones' irrigation well is scheduled in September 2006.

Asarco is working with EPA to clarify items to be addressed in an upcoming Explanation of Significant Differences (ESD), which will amend the 1989 Process Ponds Record of Decision (ROD) for the smelter site. The five items to be addressed in the ESD are 1) treatment methods for Lower Lake water; 2) treatment standards for Lower Lake water; 3) storm water management; 4) disposition of Lower Lake sediments; and 5) disposition of soils and sediments located between Upper Lake and Lower Lake.

Until the ESD is finalized, Asarco will proceed as follows:

1. Asarco is not required to undertake any in-situ treatment of Lower Lake. It will, however, continue to draw water from Lower Lake as needed for plant operations. After use, this water, along with process and storm water, will be treated in the High Density Sludge (HDS) water treatment plant and discharged to Lower Lake in accordance with Asarco's MPDES permit.
2. Asarco will continue to manage its storm water in accordance with its General Storm Water Permit issued by the State of Montana.
3. Asarco is not required to smelt any Lower Lake sediments. Asarco stored the Lower Lake sediments in a stockpile that was covered with a tarp and subjected to the run-on and run-off controls approved by EPA. As of the end of September 2001, 100% of the stockpiled Lower Lake sediments had been transported to the CAMU landfill for permanent disposal.
4. Asarco will await direction from the RCRA program on any additional evaluation that will be required of the soils and sediments in the area of the acid plant sediment drying pad. Asarco continues discussing with Shaw and other potential contractors information necessary to construct slurry walls in the former acid plant sediment drying

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area. The slurry wall construction in the former acid plant sediment drying area is tentatively scheduled for fall 2006.

**B. A description and estimate of the percentage of the Work completed, and an evaluation of any progress toward meeting Remediation Levels set forth in the Decree:**

Process Pond Operable Unit: With the permanent disposal of Lower Lake sediments in the CAMU, approximately 95%\* of the work is completed. The remaining 5% is apportioned to work on the Acid Plant Sediment Drying Pad and Underlying Soils, if necessary.

- Replace Lower Lake with Tanks - Tank installation was 100% completed in 1989.
- Sealing of Concrete Pad to Accept Excavated Lower Lake Sludges and Sediments - Sealing of the pad was 100% completed in 1994.
- Process Water Treatment Facility - Asarco completed 100% of the originally scheduled construction work associated with the High Density Sludge (HDS) water treatment facility in 1994. Subsequent improvements to the HDS plant to improve effluent quality at the full 100 gpm rated capacity were completed in March 1997.
- Dredge Lower Lake Sediments - Asarco completed 100% of the work associated with dredging Lower Lake during August 1996.
- Removal of the Acid Plant Sediment Drying Pad and Underlying Soils (This area, located between Upper and Lower Lakes, was identified by the ESD) - EPA has allowed Asarco to defer cleanup of this area, pending a thorough evaluation by EPA of the area's groundwater and surface soil composition and EPA's evaluation of Asarco's interpretation of this data. Asarco continues to work with Shaw to evaluate information necessary to construct slurry walls in the former acid plant sediment drying area. The slurry wall construction in the former acid plant sediment drying area is tentatively scheduled for fall 2006.
- Treatment of Lower Lake - Treatment through the HDS Water Treatment Plant. A joint study by Asarco and Hydrometrics was initiated in September 1995 to examine operational changes, which would improve HDS water treatment plant effluent quality. Improvements to the HDS plant have been implemented which allow the effluent to meet or exceed MPDES final permit limits. The design improvements focused on meeting MPDES permit limits and not on meeting ROD limits.
- Construction of Storm Water Collection Facility - The stormwater system is addressed

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\* The stormwater collection and retention facilities plus in situ treatment of Lower Lake water are no longer considered components of the Process Ponds Operable Unit See Section A.



under Montana's stormwater permit program.

- Storage of Excavated Sludges and Sediments and Smelting in the Smelter Process - Asarco has transported 100% of the Lower Lake sediments to the CAMU - Phase 1 Cell for permanent disposal.
- Speiss Granulation Pond and Pit: Asarco completed 100% of the work associated with the Speiss Granulation Pond and Pit in 1995. A project completion report was submitted to EPA during January 1996.
- Acid Plant Water Reclamation Facility: Asarco completed 100% of the on-site construction in 1992. Asarco completed 100% of the demolition associated with the Acid Plant Water Treatment Settling Pond in 1993.
- Former Thornock Lake: Asarco completed 100% of the work associated with former Thornock Lake in 1991.

**C. A description of any activities that deviated from or were carried out in addition to those provided for in the work plan, which occurred during the reporting period:**

There were no activities that deviated from or were carried out in addition to those provided for in the work plan, which occurred during the reporting period.

**D. Summaries of significant findings pertaining to the remedial design and remedial action during the reporting period:**

No significant findings pertaining to the remedial design and remedial action occurred during the reporting period.

**E. Summaries of all changes made in the remedial design or remedial action during the previous month:**

Asarco made no changes in the remedial design or remedial action during the previous month.

**F. A description of all unresolved problems or potential problems encountered during the reporting period that may cause a performance delay and a description of efforts made to mitigate those delays.**

Asarco has implemented improvements to the HDS water treatment plant. Any excess treatment capacity of the HDS plant could be used to treat Lower Lake water or on-site groundwater.

Remediation of the former acid plant sediment drying area between Upper and Lower Lakes has been deferred. See Section B for additional discussion.

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**G. Change orders, nonconformance reports, claims made, and actions taken to rectify problems:**

No change orders, nonconformance reports, claims made or actions were taken to rectify problems.

**H. Changes in Project Coordinator or Contractors during the reporting period:**

There was no change in the Project Coordinator during the reporting period. Correspondence can be directed to:

Mr. Jon Nickel  
CERCLA Manager  
ASARCO LLC  
P.O. Box 1230  
East Helena, MT 59635  
Ph. (406) 227-4529

The alternate project coordinator who can receive communication for the project coordinator is Robert Miller. Correspondence can be directed to:

Mr. Robert Miller  
Project Manager  
Asarco Consulting, Inc.  
5219 N. Shirley Street, Suite 100  
Ruston, WA 98407  
Ph. (253) 752-1470, Ext. 224

**I. Projected work for the next reporting period, including a schedule by week of design and construction activities for the next reporting period:**

No CERCLA construction activities are scheduled for August 2006, other than the continued discussions with Shaw and other potential contractors to evaluate information necessary to construct slurry walls in the former acid plant sediment drying area. The investigations outlined in the IM Work Plan Addendum are complete. The routine MPDES monitoring will proceed during August 2006. A complete discussion of the scheduled investigations and construction activities associated with the RCRA Consent Decree is contained in separate monthly progress reports.

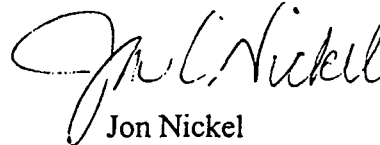
**J. Copies of inspection logs and results of all sampling and tests, data validation packages and all other data (including invalidating and validated analytical data on Contract Laboratory Program Form I's or in a similar format), as defined in the Quality Assurance Project Plan (QAPP), received or produced by Asarco during the course of Work during the previous month.**

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On-going sample collection and analyses associated with the MPDES Permit of the HDS Water Treatment Plant will be submitted to EPA under separate reports. No RCRA Consent Decree data are attached to this July 2006 monthly progress report.

I certify that information contained in or accompanying this submission is true, accurate and complete. As to those identified portions of this submission for which I cannot personally verify their truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification, that this information is true, accurate and complete.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Nickel". The signature is fluid and cursive, with a large initial "J" and "N".

Jon Nickel  
CERCLA Manager